

# UNIVERSITY COMPUTER CENTER newsletter

Director: Peter C. Patton

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Editor: A. Koepke  
 235a ExpEng  
 373-7744

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 Last month we asked for comments about proposed changes in this newsletter; the present issue is a result of your generous replies; thank you.  
 the editor

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Occasional instances of theft or other mysterious disappearances of tapes, decks, etc. have caused us to give consideration to procedures for special handling of materials designated as needing special security by the users. Such special handling would probably require some minimal additional charge. We would appreciate feedback and suggestions concerning the need for such procedures. Please address all comments to Jerry Larson, Services Supervisor, University Computer Center, 1508 Lauderdale, or call him at 373-7538.

# SYSTEMS UPDATE

## KRONOS

The 6400 system and the Cyber 74 system are now running the same operating systems. Extensive information on this new (for MERITSS users, that is) system has appeared in the August and September issues of this newsletter and additional information will be available through the system commands:

WRITEUP,NOTE.

and

WRITEUP,SYSNOTE.

NOTE gives only the most recent information; SYSNOTE gives information dating back several months.

*R. Williams*

## COMPUTER SYSTEMS HARDWARE

In line with our plans for controlled growth of the Cyber 74 and the CDC 6400 computer systems, the following hardware changes are expected for the coming fiscal year.

### (1) Non-synchronous front end addition for the Cyber 74

Non-synchronous communication is now done through a CDC 6676 that provides up to two different baud rates. We currently have thirty 300 baud and nine 110 baud rotary dial up ports and five hardwired ports (to the Duluth and Morris campuses). A number of users have asked that we provide faster port service. Since CDC's charge for providing faster service on the 6676 was too high, we have acquired a PDP-11 with DH11 auto-baud that will provide up to 14 different baud rates, with one of the first being at 1200 baud (to satisfy user requests). We anticipate that this addition will be available early in 1977.

### (2) Network system adapters

We have contracted for three network system adapters (for the Cyber 74, a PDP-11 and a CDC 7054) in order to test a coaxial cable network hookup. This will be delivered in Spring, 1977 for use in 1978. It allows the University to consider different vendors if saturation is reached in processor, mass storage, or magnetic tape facilities.

### (3) Electrostatic plotter

Testing during the summer has shown that the Statos 31 14" plotter, now owned by UCC, does not match the quality of stepping, non-smudging, error free operation, and darkness of more modern electrostatic plotters. In consequence, we will purchase a plotter that, in user tests, provides the best of these qualities.

### (4) An additional 9-track tape unit

In September, the average number of tapes mounted on the 9-track units exceeded the thousand-a-month value that signals that an additional unit will be required. We had anticipated this and ordered an additional unit in July; delivery is expected in October.

### (5) Mass storage disk units

Three additional double density 844 units were delivered in July, giving us a total of five double density and five single density removable disk drives for user space. This is equivalent to 1657 million 6-bit characters. In January, three additional double density drives will be delivered and, although two leased single density drives will be returned to CDC, user mass storage space will then be over 2000 million characters; twice the storage space available in November, 1975.

*--L. Liddiard*

## COMMUNICATIONS

A new high-speed EXPORT system will be implemented; this will be more stable, less demanding in memory requirements, and more easily maintained under the KRONOS system than is the current EXPORT system which was borrowed from SCOPE.

A new package for timesharing subsystems will be run along with the existing package to drive low speed terminals through the PDP-11 front end processor. It will support auto-baud capability and many different baud rates.

A new control card, DLIST, will be installed; DLIST permits a user to obtain a list of jobs in the "delay queue." This list can be keyed to jobs submitted from a particular terminal or from a user number. More user controls of this nature are under consideration. They will be implemented, with due regard to the protection of user privacy and system security. As these controls go into the system, documentation will be provided via WRITEUP.

Auto divert of large output files, announced earlier this year, will be put in. A more generalized banner page, to include information such as BIN number, number of cards read, etc., will be generated for print files.

*--N. Reddy*

## PERMANENT FILES

There is no longer such a thing as an unsecured permanent file on the Cyber 74. All permanent files are now secured by default. The following are products of this change:

- (1) The FS= parameter on permanent file control cards is now non-functional and will become illegal on June 15, 1977.
- (2) The FS= parameter in LOADPF will continue as legal for a time. It will be non-functional if specified on DUMPPF. It will become illegal on both LOADPF and DUMPPF on June 15, 1977.
- (3) On the first of each month, all files not used during the previous month are written to tape and purged from the disk (archived). Formerly, secured files were allowed to remain on the disks for 90 days without an access before being archived.

Tapes containing archived files are stored for one year. After a year, these tapes are re-used. Any user who needs an archived file is reminded that he has only 12 months to request restoration of the file.

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#### Rate Change--

A charge of \$5.00 per file (or \$20.00 per request, whichever is less) is made for the restoration of archived files. The flat rate covers the restoration of all permanent files for one user index or one set of archive tapes.

#### Permanent files from deleted account numbers--

Account numbers that were not renewed for fiscal year 1976-77 were deleted from the system on July 1, 1976, and permanent files associated with these deleted numbers were saved on tape and then purged from the disks. Any of these files will be restored free of charge upon request.

#### New number on CATLIST output--

User disk space was increased by 50% on September 24. This was accomplished by adding two auxiliary DJ equipments. These new equipments are set up to hold direct access files only. They will accept files according to the following scheme: each user number is assigned to one of the four master devices by the least significant digit of its user index. When a file is defined, it will either be assigned to the appropriate master device or to one of the auxiliary devices. The device selected will be the one with the most available free space. Users will not really notice the addition of these auxiliary devices and will not have to change any procedures. The only difference will be that when the CATLIST control card is used with LO=F, the device number of these auxiliary devices will appear to the right of the file size field on some direct access files. This number (20 or 21), should not be any cause for concern.

#### Protected permanent files--

We have made available what we call "protected" permanent files. A protected file is one for which even the owner must specify the file password. The FP=ON option (described in WRITEUP,PFILES) can be used on the SAVE, DEFINE, and CHANGE statements to create a protected file. For example, a file created with

```
SAVE,SAM/FP=ON,PW=MONDAY.
```

must be accessed with a statement such as

```
GET,SAM/PW=MONDAY.
```

even by the owner of the file.

Protected permanent files were invented primarily for classroom user numbers. However, they have proved to be very handy for other types of users. For example, creating a protected file with a simple password helps prevent its accidental loss through a PURGE card. Note that no real "security" is provided by protected files. We have decided that any non-student user number owner can petition the HELP-line for a forgotten file password. The caller must correctly identify the user number and user number password to the HELP-line consultant before the file password will be released. Students creating protected files must apply to a departmental consultant.

#### DUMPPF/LOADPF--

On October 14, an updated version of DUMPPF/LOADPF will be added to the system. This version will not abort if a user catalog contains protected permanent files. Two new parameters (LP and CP) were added to the DUMPPF control card. WRITEUP,DUMPPF contains a description of these parameters.

--R. Hursh

## T A P E S

Over the summer, a tape library supervisor called TAPES was installed and placed into operation on the Cyber 74 system. The primary task of TAPES is to validate access to an individual reel according to the instructions set by the owner. Ownership is designated by the user number under which the tape was placed into the UCC tape library. To have owner privileges, that particular account number must be in effect. An alternate user is a job run under a number other than that of the tape owner.

The structure and logic of TAPES closely parallels that of the permanent file system. Therefore, the behavior of the TAPES and LABEL control cards can be predicted from experience gained from using permanent files.

The following capabilities are available:

- (1) VSNs owned by the user number can be listed; several degrees of detail may be selected. (AUDIT)
- (2) VSNs owned by other user numbers can be listed (without passwords) if they are available (RA=P, RA=A, RA=W, PA=N) or permitted to the user in read or write mode.(SET, PERMIT)
- (3) Access can be controlled by setting appropriate reel access (RA) and passwords (PW). (SET)
- (4) Access can be prohibited to all or selected user numbers or groups of user numbers. (SET, PERMIT)
- (5) Reel ownership can be transferred to another user number if the new user number already owns at least one tape. This first reel can be transferred only by the Tape Librarian. (OWNER)
- (6) A descriptive comment can be associated with each tape as a mnemonic to its content. (SET)
- (7) A reel can be selected based on the comment associated with it. This allows a reel to be used without designating its VSN on any control card. (SELECT)
- (8) The reel access (RA), comment (CS) and password (PW) can be set for all or selected groups of VSNs, using a single control card. (SETALL)

The reel access set by using TAPES will override the file access (FA) code of labeled tapes stored in the library. Passwords, reel access codes, comments, and permits may be changed at any time.

The audit provides extensive information concerning a tape's usage and current status. For full details, you should execute the following control cards:

Jobcard.

```
USER(usernumber,password) [or ACCOUNT card]
WRITEUP(TAPES) +For detailed information.
TAPES. +For a VSN list
```

or

```
TAPES(AUDIT,LO=F)+For a full VSN listing.
```

If a tape you expect to see is missing, check other account numbers under which it could be logged in first. If this fails, the Tape Librarian may be able to tell you the account number that the tape should be under; he cannot tell you that account's password. Once located, access should be arranged with the individual in charge of that particular user number. Take a few minutes to execute these control cards and verify your audit.

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A two day seminar concerning TAPES and tape questions in general will be offered November 2 and 4 from 2:15 to 4:00 PM in room 50 Architecture. Bring your questions and we'll try to answer them all to your satisfaction.

Duluth readers should note that we will be presenting a tape seminar on that campus later this quarter. Scheduling will be done by the UMD Computer Center; check with them for details.

*W. Elliott*

APPLICATIONS  
UPDATE

Last year, we promised to add contouring and 3-dimensional hidden-line programs to our plotting software. Contouring has been provided via the routine, CNTOUR. We are completing the writeup for a new routine, PLOT3D, that will provide 3-dimensional plotting and we expect to announce its availability shortly. A common gridding routine, GRIDIT, will be made available. GRIDIT will take data that is not located at grid points and interpolate to a regular grid. A line printer contour routine and a shaded area routine for the plotter are also in progress.

A new version of the eigenvalue-eigenvector package, EISPACK, is announced elsewhere in this newsletter. A Bessel function package has been received from Sandia Laboratories and will be made available in the near future (its documentation needs to be revised to be more in line with our usual writeups). We will continue to downgrade SSP (the IBM Scientific Subroutine Package) because of its reported poor quality; in most cases, IMSL is the high quality replacement.

Improvements in our library documentation are planned. We continue to try to make writeups easier to understand and will be tailoring some to different levels of users. More machine-retrievable information will be available on our own library routines.

Several package systems will be newly made available or changed. Latest versions of the structural analysis package, SAP, and its nonlinear counterpart, NONSAP, are announced elsewhere in this newsletter. The structural analysis package, STRESS, will be available shortly. SPSS/ONLINE (a somewhat interactive version of SPSS) and the BMDP series are announced in this newsletter. The latest version of SPSS (6.5) is planned for introduction this fall. The Applied Statistics department plans to supply us with some stand-alone programs plus some programs to be added to the ISIS package. The Statos 31 plotter post-processing routine, PSTPRC, will be replaced by another one that has been unofficially available for several months. This new version will be called PLOT31.

As mentioned last year, we are putting heavy emphasis on humanities applications, such as textual analysis and art. Two staff members, Kevin McMahon and Sara Graffunder, now work exclusively in this area. They are providing maintenance and documentation for packages and are promoting the use of these packages.

*M. Frisch*

## NEW FINITE ELEMENT PACKAGE

UCC applications people are collaborating with Dr. R. Gustafson of the Agricultural Engineering department in the development of a finite element package for student use. The package is based on programs used by Dr. Gustafson in his courses. He will use the package in his Spring quarter course, AgEn 5-072, Finite Element Methods. A version is now working and draft documentation is near completion. The package currently has programs for elasticity, heat transfer, groundwater flow, torsion, transient heat transfer, and simple truss analysis. If you are interested in using such a package and would like to influence the general design or see other sub-areas covered, please contact Dick Hotchkiss at 373-5756 (235F ExpEng) or Bob Gustafson at 373-1359 (308 AgEng).

*R. Hotchkiss*

## EISPACK CHANGES

On October 31st, EISPACK, the library of eigenvalue/eigenvector routines, will be replaced by its Version 2 successor. A total of seventy routines will be available. Users may preview the documentation by perusing the machine-retrievable indexed writeup, EISPACK. To gain access to this writeup, use the control statement WRITEUP,EISPACK.

*D. Lienke*

## STRUCTURAL ANALYSIS PROGRAMS

Two structural analysis programs are now available:

- SAPIV - static and dynamic response of linear systems.
- NONSAP - static and dynamic response of nonlinear systems.

To use these programs, first consult the reference manuals in the UCC Reference Room, prepare your model, and then use the following job decks:

<u>SAPIV</u>	<u>NONSAP</u>
Jobcard (with CM140000)	Jobcard (with CM120000)
BIN card	BIN card
ACCOUNT card	ACCOUNT card
SSAP.	NSAP.
Δ (7-8-9 card)	Δ (7-8-9 card)
(your data)	(your data)
Δ (7-8-9 card)	Δ (7-8-9 card)
□ (6-7-8-9 card)	□ (6-7-8-9 card)

The reference manuals available are:

SAP IV, A Structural Analysis Program for Static and Dynamic Resonse of Linear Systems, Bathe, Wilson, and Peterson, EERC 73-11 (Berkeley), 1974.

Static and Dynamic Geometric and Material Nonlinear Analysis, Bathe, Ozdemir, Wilson, UC SESM 74-4, (Berkeley), 1974.

NONSAP, A Structural Analysis Program for Static and Dynamic Response of NonLinear Systems, Bathe, Wilson, Iding, UC SESM 74-3 (Berkeley), 1974.

*D. Lienke*

## STATISTICS PACKAGES

### BMDP

All the programs of the BMDP series are now available. The BMDP programs that have been implemented recently into dynamic storage provide many new features not contained in the older BMD series. These are:

- (1) New statistical techniques:
  - P2D includes three new robust location estimators from the Princeton study.
  - P7D provides Winsorized estimates of means.
  - P1F provides about 25 statistics appropriate for contingency tables and their asymptotic standard errors.
  - P1M, P2M, P3M perform cluster analysis.
  - P4M provides maximum likelihood factor analysis.
  - P7M allows use of contrasts in the selection of variables for a classification function in discriminant analysis.
  - P2R allows backward stepping in regression.
  - P6R computes partial correlations.
  - P3S does several nonparametric tests.
  - P2V provides an analysis of repeated measures.
- (2) Graphical output: most BMDP programs have some kind of graphical output.
- (3) More options available for most programs.
- (4) Transformations: an extensive within program specification of the most common transformations has been added.

In addition, the BMDP series programs have a parameter control language which is similar to that used in SPSS. The data description portion of the control language is the same for all programs.

To access one of these programs, use the following control card:

BMDPxx

where xx is 1D, 2D, ..., or 2V.

The field length table will be available in Room 140 ExpEng. Anyone needing information should please call me.

--S.P. Yen, 373-4886

### SPSS/ONLINE

SPSS/ONLINE Version 4.0 is now available in the MIRJE and MERITSS systems. This version handles up to 100 variables and 5 subfiles. To access this program, you need a minimum field length of 45000B and the following control card:

SPSSONL.

SPSS/ONLINE actually is composed of two parts. In the first section, you enter and edit SPSS procedures and specifications. Following an SPSS/ONLINE execute command, SPSS/ONLINE enters the second section in which it performs the statistical analysis specified.

The documentation for this product will be available in the UCC Reference Room in the near future. If you need further information, please call.

--S.P. Yen, 373-4886

## SPECIAL LANGUAGE PROCESSORS

### PASCAL

This summer, much work was done to improve the Pascal compiler at UCC. The current version of the compiler is Release 2 of Pascal 6000 from E.T.H. Zurich, with modifications made at the University of Minnesota, including changes for interactive use. New features evident in this version are:

Automatic field length reduction on the load and go, using the G+ option.

Removal of the restriction requiring the length of character strings to be a multiple of 10 when used in comparison tests.

Runtime checks on pointer usage.

Improved runtime error diagnostics designed for interactive users.

In addition, many bugs have been corrected including some that users probably had not encountered.

#### *The Pascal library*

The Pascal library, PASCLIB, has also been improved. A printer plotter package, PRNTPLT, was implemented. This package was modeled after the University's FORTRAN-compatible routine, SCLPLT. A pseudo-random number function is now available under the name RANDOM. Please see the WRITEUP,PASCLIB file for details on these and other planned additions to the Pascal library.

#### *Pascal User's Group*

The International Pascal User's Group (PUG), started at the University in March, 1976, now has 420 members in 17 countries. The Pascal Newsletter #5 (66 pages) was produced in August; Newsletter #6 is due in November. The response to PUG has been very gratifying, especially the 30 members on this campus.

#### *Future plans*

During Fall quarter we will concentrate on improved documentation. We also plan to continue enhancements to the compiler and its library. The work on a *value initialization facility* has been much slower than expected and should take some time to complete but it will be really good when it finally appears. Another feature under consideration is a facility for variable extent array parameters (frequently referred to as *dynamic array parameters*). Continued work to reduce the size of the compiler is also planned.

We foresee replacing the current version of the compiler with the FUTURE version between Fall and Winter quarters. The major improvements in the FUTURE version will probably be the core-reduction changes and the addition of new functions and procedures to the Pascal library. These will include POWER, ARCSIN, ARCCOS, ARCTAN2, SINH, COSH, TANH, LOG10, and improved versions of currently available routines SIN, COS, EXP, ARCTAN, SQRT, and LN. These functions, which were kindly provided by the MNF compiler library, will be documented in detail in the WRITEUP,PASCLIB file.

#### *Pascal support*

Users will find that Pascal support is far better this year, commensurate with the growth in usage experience.

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enced over the past year (see the article on language processor usage elsewhere in this newsletter). We now have five persons working on Pascal; Lawrence Liddiard, John Strait, Andy Mickel, Dan LaLiberte, and Herb Rubenstein. Consulting has also improved; the support persons plus Joel Halpern and Brian Hanson mean that sufficient Pascal consulting is available to users.

*Education and documentation*

A Pascal short course is planned for Winter quarter. The Engineering Bookstore will stock the book, PASCAL USER MANUAL AND REPORT, as a reference book this year (in the computer manuals section) rather than as a text book.

--A. Mickel & J. Strait

PASCAL PRINTER PLOTTER

A Pascal printer plotter, PRNTPLT, is now available to PASCAL users. It consists of four Pascal-callable procedures: SCLINITIAL, SCLWINDOW, SCLPLOT, and SCLPRINT. A high speed line printer, 1004 RJE terminal, or a 132 column hard-copy interactive terminal (such as a DECwriter) may be used for output. Plots are scaled to graph on a single sheet of printer paper.

Axis labels and axes are automatically set up; the user need only provide data points, titles, and plotting characters. Plots overlaid on one another (multi-plots) may be generated as easily as single plots. The SCLWINDOW procedure provides the ability to take a portion of a plot and expand it (that is, blow it up and make a new plot).

The Pascal printer plotter was created primarily because the printer plotting routines available in the FORTRAN library do not offer the same features and simplicity, nor are they compatible with Pascal.

--H. Rubenstein

SNOBOL

The two SNOBOL processors available at UCC have performed well for the past year and a half. They have not been changed in this time and are enjoying increased usage. Documentation for SNOBOL exists in the UCC publication "SNOBOL 4 at the University of Minnesota," written last April. We anticipate no further changes to either SNOBOL processor this year.

--A. Mickel

SLIP

SLIP, a FORTRAN subprogram library to process doubly linked lists, has been available for many years under the RUN FORTRAN calling sequence. Since SLIP usage has been very low and UCC has a policy of no longer supporting RUN FORTRAN-compatible software, the support level of SLIP is now being changed from 3 to 5 (unsupported). A year from now, SLIP will be removed from the computer systems.

Users who feel that SLIP is important to them should call me at 612/376-7290 or write to me at the University Computer Center. Because important list-processing applications are now being developed more naturally and efficiently in other languages (e.g., LISP, PASCAL), the trend has been to decreased use of software such as SLIP.

--A. Mickel

LISP

LISP has undergone a series of refinements over the last six months since Version 4 became the current version. Several users and the steady work of Joel Halpern led to this improvement. Two new documents are available to LISP users: an up-to-date WRITEUP file called LISP, and a very large manual, kept on tape and available via FETCH,LISPDOC.

Future plans for LISP are to continue fixing bugs in the current version.

This Fall, a LISP short course will be offered,  
--A. Mickel

APL

APL (A Programming Language), developed by Kenneth Iverson in 1962, is a high level interpretive language which incorporates sophisticated and complex operations on numerical data. Some operations on characters are also provided. The operations in the language can be divided into three categories:

- (1) Scalar operations (a scalar is a single real numeric quantity or single character; scalars are conceptually zero dimension arrays).
- (2) Vector operations (a vector is a one dimensional array).
- (3) Matrix and n-dimensional array operations.

Unlike nearly any other language, APL possesses special symbols used as operators for these operations. All the common mathematical operators as well as special ones for factorials, logs, and trig (transcendental) operations are available for scalars. Cross product operators exist for vectors. A unique quality of APL allows scalar-operators to be applied uniformly to vector and n-dimensional arrays with the effect that each element in the structure is processed. The limit on array dimensionality is quite large. A class of operations on all APL scalars and structures deals with the creation (specification), destruction (erasure) and restructuring (reshaping) of data.

The special characters are illustrated in the example of program MVSD (mean, variance, standard deviation) below:

```

∇ MVSD[ ] ∇
∇ T←MVSD X;N;M;VAR;SD
[1] SD←(VAR+(+/[1](X-(ρX)ρM+(+/[1] X):N)*2)÷(N+(ρX)
[1])-1)*0.5
[2] T←O(3,ρM,10)ρM,VAR,SD
∇

```

Since there are many users who do not have terminals with APL characters, special character mnemonics have been designed to permit a teletype or an ASCII CRT to be used as well. The following illustration of the MVSD program is written using character mnemonics:

```

$DL T$IS MVSD X;N;M;VAR;SD
[1] SD $IS (VAR $IS (+/[1](X-($RO X) $RO M $IS
(+/[1] X) $DV N) * 2) $DV (N $IS ($RO X)
[1]) - 1) * 0.5
[2] T $IS $TP (3, $RO M, $IO 0) $RO M,VAR,SD
$DL

```

APL is implemented as an interpreter designed to be used interactively from a terminal. Upon entering the APL system, the user is placed in an environment called a workspace. (A workspace is a conceptual term used to describe the storage area assigned to the user for variables and functions, and the status indicator.)

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Functions refer to a user defined sequence of operations given a name so that it may be invoked at any time. The status indicator allows the user to freeze an APL session and resume it at a later time.

At the University of Minnesota, we have two APL interpreters, APLUM (from the University of Massachusetts) and APL\*CYBER (from CDC). We recommend APLUM because of its efficiency and the existence of data file management and system communication functions and variables. We have just leased the latest version of APLUM (Version 2.20) and will make it available on the 6400 since that system supports the heaviest use of APL. We will continue to support Version 2.12 on the Cyber 74.

The procedure for using APLUM is to first sign on and then do a WRITEUP,APLUM; after reading the 3-page writeup, type the Telex command "APL." You need not be an APL expert to use APLUM. APLUM supports a library of workspaces on user number APL1. This library includes six statistical workspaces, a plotting package for Tektronix terminals (PLOTFNS), and workspaces to aid data file management.

APLUM documentation consists of a reference manual (APLUM Reference Manual, Edition 2, by Weidmann). Reference copies of this manual may be found at all RJE sites and in the timesharing labs. You may order personal copies from:

APL Group  
University of Massachusetts  
UCC/GRC  
University of Massachusetts  
Amhurst, MA 01002

for \$3.75.

We will offer an APL short course Winter quarter. The course will cover the APL language and all the things you need to know to use APL at the University of Minnesota. If you have any questions or problems concerning APL or APLUM, please call me. Since we hope to maintain a stable APL system, we would appreciate reports on any problems found by users.

--K. Fjelsted, 238 EX, 373-4181

RECORD MANAGER  
SORT/MERGE  
COBOL

- (5) There appears to be little or no current demand for COBOL 5 (COBOL 5 conforms to the ANSI 1974 COBOL standard). Therefore, because of this and the cost of purchasing this software, we have deferred making COBOL 5 an available standard product to users.

We will continue to evaluate the need for COBOL 5. If you have questions concerning the removal of this product, please contact Steve Nachtsheim, 373-7878.

#### CURRENT, FUTURE & PAST VERSIONS

A list of the FUTURE, current, and PAST versions of the COBOL compiler and the SORT/MERGE processor, as well as FUTURE and current versions of Record Manager and specific utility products is presented here. By specifying the following control cards, a user may access the desired version of these products:

FUTURE(*name*) Provides the latest version.  
*name*. Provides the current version.  
PAST{*name*} Provides the older version.  
FETCH(*name*) Provides the current version of the library specified by "name" or may provide a special version of the product.

The products and libraries available are:

BBT06RM Blocked binary conversion routine.  
CB4LIB COBOL library routines.  
COBOL COBOL compiler.  
COPY8P 8-bit subroutine utility to copy IBM to CDC print files.  
COPYCL Utility to create a COBOL source library.  
ESTMATE Record Manager utility routine for index sequential files.  
IXGEN Record Manager utility routines for multiple index files.  
RANCONV Random file conversion routine.  
SISTAT Record Manager statistical utility routine for index sequential files.  
SMTEXT SORT/MERGE test for SORT/MERGE COMPASS routines.  
SORTMRG SORT/MERGE processor.  
SRTLIB SORT/MERGE library.  
SYSIO Record Manager library routines.  
SYSMISC Version 3.0 COBOL library for old binary SORT/MERGE programs.

The current versions of SORTMRG and SYSIO reside in the system and not on CALLPRG. When accessed, all the libraries (SYSIO, CB4LIB, SRTLIB, and SYSMISC) need only be used when binary programs are to be executed. When the COBOL compiler and the SORTMRG processor are accessed, all the necessary libraries and utilities are provided automatically. The utility products, BBT06RM, ESTMATE, SISTAT, RANCONV, IXGEN, COPYCL, and COPY8P need to be individually accessed. However, the COBOL compiler does automatically access the COPYCL utility.

All Version 3 products specified in this report will be removed from the system and from CALLPRG at the start of Winter quarter (see the following item for an additional report).

Documentation for these products can be found in the following manuals and writeups:

(continued on page 8)

#### COBOL VERSION 5

On Monday, September 27, the COBOL 5 compiler and all its associated products were removed from the system. During the past summer, COBOL 5 was an experimental product in a joint test effort between CDC and UCC. This test period produced the following results which led to the conclusion to remove this product.

- (1) The COBOL 5 compiler took much longer to compile source programs. However, it did produce excellent compile diagnostics.
- (2) There appeared to be no savings in execution time between COBOL 5 and COBOL 4 programs.
- (3) COBOL 5 programs required a lot more core for both compilation and execution.
- (4) A substantial amount of effort is required to convert COBOL 4 programs to COBOL 5.

- (1) BBT06RM and RANCONV: V3 to V4 Data File Conversion Guide (UCC, 1975).
- (2) COBOL, CB4LIB, and COPYCL: COBOL V4 Reference Manual (CDC #60384100) and COBOL 3 to COBOL 4 Conversion Guide (UCC, 1975).
- (3) ESTMATE, IXGEN, SISTAT, and SYSIO: Record Manager User's Guides (CDC #60359600, CDC #60385200, CDC #60385300).
- (4) SORTMRG, SMTEXT, SRTLIB, and SYSMISC: SORT/MERGE V4 and V1 Reference Manual (CDC #60343900); SORT/MERGE 3.0 to SORT/MERGE 4.0 Conversion Guide (UCC, 1975).
- (5) COPY8P: 8-bit Subroutines Version 1 Reference Manual (CDC #60359400).

The following table describes the level of products to be accessed when using FUTURE, 'name', PAST, or FETCH:

Product	FUTURE	current	PAST	FETCH
BBT06RM	NA*	BBT06RM	NA	NA
CB4LIB	V4.5, Level 12: PSR420	NA	NA	V4.4, Level 10: PSR401
COBOL	V4.5, Level 12: PSR420	V4.4, Level 10: PSR401	V3	V3
COPYCL	V4.5, Level 12: PSR420	V4.4, Level 10: PSR401	V3	V3
COPY8P	V4.5, Level 12: PSR420	V4.4, Level 10: PSR401	NA	NA
ESTMATE	V4.5, Level 12: PSR420	V4.4, Level 10: PSR401	V3	V3
IXGEN	V4.5, Level 12: PSR420	V4.4, Level 10: PSR401	NA	NA
RANCONV	NA	RANCONV	NA	NA
SISTAT	V4.5, Level 12: PSR420	V4.4, Level 10: PSR401	V3	V3
SMTEXT	V4.4, Level 12, PSR420	NA	V3	V4.2, Level 10: PSR401
SORTMRG	V4.4, Level 12, PSR420	V4.2, Level 10: PSR401	NA	NA
SRTLIB	NA	NA	NA	V4.4, Level 12: PSR420
SYSIO	NA	V4.5, Level 12: PSR420	NA	V4.4, Level 10: PSR401
SYSMISC	NA	NA	NA	V3

\*NA means not applicable.

#### VERSION 3 PRODUCTS

The old versions of COBOL, SORT/MERGE, SCOPE Indexed Sequential (SIS), and System 2000 products will disappear at the start of Winter quarter. The following list describes the individual products that will be eliminated. Please note that these changes do not affect MIRJE and MERITSS users of the COBOL time-sharing subsystems.

All users of these products should make the necessary preparations for this changeover. Documentation for COBOL and SORT/MERGE conversions can be obtained in the UCC Reference Room. If further assistance is needed, please call either John Cosgrove at 373-2522 or Howard Kurs at 373-5754.

Product	File name	Description	Current access
COBOL	COBOL	Version 3 COBOL compiler.	PAST(COBOL)
	COPYCL	Version 3 COBOL copy utility.	PAST(COPYCL)
	SYSMISC	Version 3 COBOL library.	FETCH(SYSMISC)
SORT/MERGE	SORTMR3	Version 3 SORT/MERGE processor.	SORTMR3.
	SMTEXT	Version 3 SORT/MERGE texts.	PAST(SMTEXT)
SIS	BUFDEFN	Defines buffer size for SIS file: Version 3	BUFDEFN.
	CREATE	Makes SIS file from COBOL 3 sorted files: Version 3	CREATE.
	DUMPC	Copies SIS file from COBOL 3 sorted files: Version 3	DUMPC.
	DUMPR	Copies SIS file to tape: Version 3	DUMPR.
	DUMPS	Creates sequential file for COBOL 3 from SIS file: Version 3	DUMPS.
	ESTMATE	Estimates SIS file buffer size: Version 3	PAST(ESTMATE)
	RELOADR	Copies SIS file from tape: Version 3	RELOADR.
	SISTAT	Produces statistical information from SIS files: Version 3	PAST(SISTAT)
System 2000	S2000	System 2000 data base management system: Version 2.30	PAST(S2000)
	S2000RW	Version 2.35 Report Writer for Version 2.30 System 2000	PAST(S2000RW)
	BUILD	Produces absolute code and overlays for PLI: Version 2.30	FETCH(BUILD)
	PLICOB	System 2000 COBOL procedural language interface: Version 2.30	PAST(PLICOB)
	PLIFOR	System 2000 FORTRAN procedural language interface: Version 2.30	PAST(PLIFOR)
	PLILG03	System 2000 Load and Go procedural language interface: Version 2.30	FETCH(PLILG03)
	PLIULIB	System 2000 User Library procedural language interface: Version 2.30	FETCH(PLIULIB)



## M N F

We should like to reduce the frequency and number of changes we make to the MNF compiler. It is in everyone's interest to 'freeze' products when they are in a reliable (error-free) condition and are up to date with other products and with the operating system. The introduction of FTN Version 4 has made available to users an excellent 'state of the art' compiler. It is reliable and very suitable for long-running programs. MNF does, and will continue to, generate less efficient object code than FTN(OPT=2,UO), but the vastly superior compilation performance and debugging features of MNF make it more suitable than FTN for all but production programs.

Three versions of MNF are available:

- (1) The batch version on the Cyber 74 (obtained by means of the MNF control card).
- (2) The timesharing version on MERITSS and MIRJE available under the FORTRAN and MNF subsystems.
- (3) The BATCHER student compiler.

These are (or preferably should be) effectively the same compiler and library with features removed in order to make the timesharing version as small as possible and with features removed (and special system features added) to produce the student BATCHER version.

We propose to maintain these three versions, and FTN Version 4, for the foreseeable future. However, since these four versions of FORTRAN would appear to satisfy all the needs of users, it would be an attractive idea to remove the RUN and FTN Version 3 compilers and to discontinue support for the MNF(C=RUN) calling sequence.

Since the FTN 4 compiler's execution I/O library (FORTRAN) uses Cyber Record Manager, another attractive idea is to make the MNF library also use Record Manager and to interface to the FTN 4 library (instead of the FTN 3 or RUN libraries). This would considerably reduce the amount of maintenance we have to do, resulting in a more reliable and much more stable FORTRAN service for all users.

It is true that Record Manager takes up a lot of execution storage (about 5000B words for a small program), but the probable availability of a much smaller Record Manager would alleviate that difficulty. This small Record Manager would be used by all versions of MNF (and possibly by FTN 4), and would provide all of the record types and blocking types used by the various kinds of FORTRAN files (coded, binary, buffered, and random), but not including blocked binary files.

A preliminary version of an FTN 4 compatible MNF compiler and library has been available for about a year as FETCH,MNF. However, this version has had little use (people rarely use anything but the standard system versions of products), and it has not been corrected for over six months. It is proposed to replace this FETCH version within the next few months with a new MNF compiler using Record Manager which we hope will eventually become the standard system MNF. At first, this FETCH version may use the standard Cyber Record Manager (rather than the small one). This will enable user to prepare for the eventual introduction of Record Manager into MNF.

Meanwhile, we have made a large number of corrections and improvements resulting in a new version (Version 5.0) of MNF, and we should like to introduce this version as FUTURE,MNF in January, 1977. This version would initially use Record Manager, for two reasons: (1) the small Record Manager is not yet available, and (2) introduction of the major change and then of Record Manager in two stages should lessen the impact on users.

Once the new version has been introduced into the system and allowing several weeks for correcting the errors that always appear with new products, it is proposed to 'freeze' MNF, i.e., to make no changes apart from the later introduction of Record Manager to the standard version except in the cases of emergency. The FUTURE version would be infrequently updated only in order to correct errors. Non-essential changes and new features would not be inserted. Since this new version will be around for a long time, we will take this opportunity to make a considerable change to the compiler which will comprise:

- (a) Removal of all known errors in MNF and its execution library.
- (b) Revised, more attractive, and more accurate source listing and cross-reference map.
- (c) Shorter and clearer trace error messages.
- (d) A more rational removal of features to save core in the timesharing version. Our current proposal is to remove double precision and complex arithmetic from the timesharing version. The cross-reference map and object code listing would also be removed. However, no other features would be removed in the timesharing version. We would be interested to hear your reactions to these proposals. If there is no user reaction, we will proceed with them.

The new source listing and cross-reference map represent only a rather small change to the MNF compiler but they may make it seem to the user that it is an entirely different product. We are prepared to make changes to the new listings in response to constructive user criticism; to this end examples of the old and new listings are given below. The program is atypical but displays all the changes. More reasonable programs would generate more attractive output. The contents of the new listing should require no description and none is given here. The philosophy is that if what is printed is not clear then either it should not be printed at all or it should be changed so that it is clear. A final advantage of this new version is that it will be the one used at other computer sites where MNF is used. There are about 50 such sites running, between them, over a thousand jobs every hour. Some use Record Manager and some do not (from the point of view of the MNF compiler, the difference is not extensive). Thus, a large amount of information about the new compiler will be quickly gained, leading to rapid error correction and a stable situation.

In the longer term, the features of the new (1976) standard FORTRAN will become important. Control Data have promised that a version of FTN that will accept the new standard features will be produced. We, too, intend to add the new features to MNF but the time when these might become available to user is far off. (Indeed, the standard itself is not yet agreed upon.) This new standard version of MNF would not, in fact, be called MNF (this will avoid confusion) and its name is yet to be decided on (your suggestions are welcome). We anticipate that this new compiler will be released during 1978.

SAMPLES OF SOURCE LISTING & CROSS REFERENCE MAP

```

1. 000000B SUBROUTINE BAD(PRACT,ICE,S)
2. 000000B DIMENSION WRONG(8)

C
C THIS INCORRECT REFERENCE ALSO GENERATES A TRACE
C WRONG(9)=0
3. 000000B -----SUBSCRIPT OF WRONG IS < 1
(3) - WARNING PRACT=UNSET
4. 000014B -----VARIABLE OR ARRAY = UNSET
(4) - CAUTION NO GOOD=SOHT(PRACT)
5. 000015B (THIS SORT OF AN UNDEFINED NUMBER CAUSES AN EXEC

C
C C
C SOME OTHER EXAMPLES OF MNF ERROR MESSAGES --
6. 000022B HOPELESS=HONG+NOGOOD*10,0**3+S
C (MNF(D) ALLOWS THE PROGRAM TO EXECUTE DESPITE TH

C
** (A) - FATAL -----ILLEGAL NAME - MORE TH
(6) - CAUTION -----SIMPLE VARIABLE - WRONG HAS
PREVIOUSLY REFERENCED IN 3, 2,
(6) - NOTE -----
(6) - COMMENT -----10 ** INTEGER CONSTANT SHOU
(6) - COMMENT -----CHANGE OF TYPE IN STAT
7. 000026B 2 RETURN
8. 000032B END
(6) - WARNING -----PARAMETER ICE HAS DIF
(6) - CAUTION -----SUBPROGRAM BAD APPE
(9) - WARNING PREVIOUSLY REFERENCED IN 1.
PREVIOUSLY REFERENCED IN ST.
CAUTION -----POSSIBLE MISPUNCH - VARIABLE OR ARRAY
    
```

TABLE OF STATEMENT NUMBERS

NUMBER	USE	ADDRESS	SOURCE PROGRAM REFERENCES
1	2 (UNUSED)	000027B	7L

TABLE OF NAMES ENCOUNTERED

NAME	TYPE	MAIN USE	BLOCKS	ADDRESS	SOURCE PROGRAM REFERENCES
HOPELESS	R	VARIABLE		000061B	6S
NOGOOD	I	VARIABLE		000063B	6U 5S
PRACT	R	VARIABLE	PARAMETER	NO. 1	5P 5U 4S 1D
S	R	VARIABLE	PARAMETER	NO. 3	6U 1D
SOHT	R	STANDARD		5U	6U
UNSET	R	VARIABLE		000062B	4U
WRONG	R	ARRAY		000000B	6U 3S 2D

SUBPROGRAM LENGTH ANALYSIS

LOCAL STORAGE AREA	LENGTH
TABLES FOR TRACING	11
CONSTANTS	5
ENTRY CODE	2
EXECUTABLE CODE	12
TEMPORARY STORAGE	18
ACTUAL PARAMETERS	2
TOTAL (LESS COMMON)	2
	52

ABBREVIATIONS USED ABOVE (THESE A

- A USED IN FORTRAN ASSIGN STATEM
- B OCTAL ADDRESS RELATIVE TO PROG
- C OCTAL ADDRESS RELATIVE TO /BLO
- D DEFINED IN DECLARATIVE STATEM
- E STATEMENT NUMBER ENDING A DO L
- I INDEX OF A DO OR IMPLIED DO L
- J STATEMENT NUMBER USED IN TRANS
- L SOURCE LINE OF A STATEMENT NUM
- N NAME USED AS A DO LOOP PARAME

```

000000P 1. SUBROUTINE BAD(PRACT,ICE,S)
000000P 2. DIMENSION WRONG(8)

C
C THIS INCORRECT REFERENCE ALSO GENERATES A TR
C WRONG(9)=0
3. 000000P -----SUBSCRIPT OF WRONG IS < 1
(3) - WARNING PRACT=UNSET
4. 000014B -----VARIABLE OR ARRAY = UNSET
(4) - CAUTION NO GOOD=SOHT(PRACT)
5. 000015B (THIS SORT OF AN UNDEFINED NUMBER CAUSES AN E

C
C C
C SOME OTHER EXAMPLES OF MNF ERROR MESSAGES --
6. 000022B HOPELESS=HONG+NOGOOD*10,0**3+S
C (MNF(D) ALLOWS THE PROGRAM TO EXECUTE DESPITE TH

C
** (A) - FATAL -----ILLEGAL NAME - MORE THAN 7 CHARACTERS - HOPELESS
(6) - CAUTION -----SIMPLE VARIABLE - WRONG HAS ALREADY APPEARED AS AN
PREVIOUSLY REFERENCED IN 3, 2,
(6) - NOTE -----
(6) - COMMENT -----10 ** INTEGER CONSTANT SHOULD BE 10**3
(6) - COMMENT -----CHANGE OF TYPE IN STATEMENT - PARAMETER TYPE UNDEF
(6) - CAUTION -----PARAMETER ICE HAS DIFFERENT TYPE IN CALL OF = BAD
(9) - WARNING -----SUBPROGRAM PARAMETER = ICE NOT USED
(6) - CAUTION -----PARAMETER S IS OF DIFFERENT TYPE IN CALL OF = BAD
(9) - WARNING -----STATEMENT NUMBER 2 NEVER USED
    
```

NUMBER OF CROSS REFERENCES WITH STATEMENT NO. (D), (P), (N), (T)  
 NUMBER OF CROSS REFERENCES WITH STATEMENT NO. (D), (P), (N), (T)  
 NUMBER OF CROSS REFERENCES WITH STATEMENT NO. (D), (P), (N), (T)  
 NUMBER OF CROSS REFERENCES WITH STATEMENT NO. (D), (P), (N), (T)

NAME	TYPE	MAIN USE	BLOCKS	ADDRESS	SOURCE PROGRAM REFERENCES
HOPELESS	R	VARIABLE		000061B	6S
NOGOOD	I	VARIABLE		000063B	6U 5S
PRACT	R	VARIABLE	PARAMETER	NO. 1	5P 5U 4S 1D
S	R	VARIABLE	PARAMETER	NO. 3	6U 1D
SOHT	R	STANDARD		5U	6U
UNSET	R	VARIABLE		000062B	4U
WRONG	R	ARRAY		000000B	6U 3S 2D

PROGRAM LENGTH ANALYSIS

LOCAL STORAGE AREA	LENGTH	LOCAL STORAGE	TRACING STORAGE
TABLES FOR TRACING	11		
CONSTANTS	5		
ENTRY CODE	2		
EXECUTABLE CODE	12		
TEMPORARY STORAGE	18		
ACTUAL PARAMETERS	2		
TOTAL (LESS COMMON)	2	11	5

--C. Schofield

PFM LIBRARY ROUTINES

RUN COMPILER TO BE DROPPED

A while ago we ended support of RUN and its related routines because of our limited manpower and because CDC ended its support. Also, we found that the code generated by RUN is slower than the code for MNF or FTN. (See our December, 1975 newsletter, p. 3). Since RUN is slower and is taking valuable disk space, we have decided to eliminate it from the operating system. We plan to do this after the end of the second summer session in 1977 so you have plenty of time to convert any RUN programs you have to MNF or FTN.

We will be removing the RUN library routines; this means that relocatable binary decks from RUN will not be usable. While absolute overlays could be made from the relocatable binary, we do not recommend this. Start conversion now so that any problems that arise can be taken care of before it is too late.

--L. Liddiard

The permanent file routines on the FTN 3 library, FT3LIB, have been modified to implement the usage of a no abort parameter. The no abort parameter, when used, stops the job from aborting if PFM errors occur and returns the PFM error code to the calling program. The omission of the no abort parameter causes the PFM routines to abort a job if PFM errors are found. The no abort parameter has been implemented for quite some time in the FTN 4 library, FORTRAN, and is now extended to FT3LIB for compatibility purposes.

A description of the PFM routines available in both libraries can be obtained by using WRITEUP,CALLPFM.

--M. Riviere

If you run your batch jobs through the high speed I/O station at 131 Experimental Engineering, you may call 373-4994 to hear a recorded message telling the BIN numbers for jobs which have been completed. Appropriate messages indicating system status, upcoming holiday schedules, or other urgent items of interest will precede the list of BIN numbers on the recording. Information on current system status, upcoming holiday hours, current SYSNOTEs and other information of interest to users is also posted on the bulletin board on the west wall of room 131 Experimental Engineering.

A suggestion box and cards are provided on the metal cabinet immediately to your right when you enter room 131. Use these suggestion cards to record comments, questions, or suggestions about any aspect of the UCC. The cards are collected regularly and directed to the appropriate persons in the department for response. Specific comments regarding the operation of the ExpEng high speed station should be directed to:

Jerry Larson  
Operations Services Supervisor  
University Computer Center  
150B Lauderdale  
Telephone: 373-7538

OPERATIONS REQUEST FORMS

This article will attempt to explain the various request forms that are used by UCC's Operations group. Complete details of Operations policies and the use of these and additional forms is forthcoming in the UCC User's Manual (scheduled for publication this fall). All of these forms are available in the Lauderdale I/O area (or from I/O personnel), at the ExpEng station, and at the West Bank Computer Center. Copies will also be supplied, on request, to other RJE supervisors. These forms have been designed to help us serve you more efficiently and effectively. PLEASE FILL OUT ALL FORMS AS COMPLETELY AND CONCISELY AS POSSIBLE.

TAPE STORAGE REQUEST

- a) Request storage for 7-track and 9-track tapes on separate forms. Circle "7-track" or "9-track" on the form.
- b) If, due to extenuating circumstances, you must have your number(s) earlier than normal, state your reasons and the required time here. One hour is the minimum allowable request and we reserve the right to judge what constitutes "extenuating circumstances."
- c) Tape ID information must be supplied by the user and is the name by which the tape will be identified on the paper label that the Tape Librarian affixes.
- d) The request to destroy the tape label should be checked "YES" only if the tape being stored was previously labeled and you wish to destroy that label. Do not check "YES" if information on the tape is to be retained. The default assumption on this request is "NO."
- e) VSN's are supplied by the Tape Librarian. All tapes not purchased from UCC are cleaned prior to being stored in our library; we charge \$1.00/tape for this cleaning.

UCC TAPE STORAGE REQUEST

DATE \_\_\_\_\_ PERSON RESPONSIBLE FOR TAPE \_\_\_\_\_

DEPARTMENT \_\_\_\_\_ PHONE NO. \_\_\_\_\_ USER NUMBER \_\_\_\_\_

Please store the following tapes in the (circle one): A. 7-Track, B. 9-Track Tape Library.

NOTE: Normally the Tape Librarian will contact you for the new VSN number(s) within 24 hours. If, due to extenuating circumstances, you require your number(s) sooner, please indicate how soon and explain why.

TAPE ID(S) (14 characters or less)	Do you wish TAPE LABEL DESTROYED?*	FOR OFFICE USE	
		Storage Number	Cleaned Date/Initial
_____	YES _____	VSN = _____	_____
_____	YES _____	VSN = _____	_____
_____	YES _____	VSN = _____	_____
_____	YES _____	VSN = _____	_____
_____	YES _____	VSN = _____	_____
_____	YES _____	VSN = _____	_____

All tapes stored in our libraries which were not purchased from us originally will be cleaned before they are stored at a charge of \$1.00. In addition, if the tape has an internal label which you wish to have destroyed, we will destroy it by evaluating the tape at an additional charge of \$.50. Tapes with information on them to be retained should not be evaluated. The default for this option is "NO."

If you will not be at the above number, please fill out this section of the form. Also, if you have any questions, please contact the Tape Librarian at 373-4995.

Person the Tape Librarian may contact with the new VSN number:

NAME \_\_\_\_\_

PHONE \_\_\_\_\_

HOURS \_\_\_\_\_

\*\*\*Return this form and tape(s) to the Tape Librarian at Lauderdale\*\*\*

For Office Use: Date and Time Received \_\_\_\_\_

Date and Time Responded \_\_\_\_\_

JOL 4/5/76

STORAGE OF TRANSIENT TAPES

REQUEST FOR TEMPORARY TRANSIENT TAPE STORAGE (LAUDERDALE)

DATE-----TAPE VSN-----TAPE ID-----

ACCOUNT NO.-----PHONE NO.-----

NAME-----OPER-----

STORAGE FOR A MAXIMUM OF TWO WEEKS AFTER THEY WILL BE RETURNED TO THE LOCATION LISTED BELOW.

RETURN AFTER (DATE)-----RETURN TO-----

PLEASE SIGN-----

9/12/75 KEM

Use this form to store transient tapes temporarily at Lauderdale. A separate slip should accompany each tape. Storage is limited to two weeks. This procedure will permit your use of a transient tape intensively for some time without having to submit a special request slip and the tape with each run.

TAPE TESTING

REQUEST TO HAVE TAPE TESTED (LAUDERDALE)

TAPE VSN-----TAPE ID-----

ACCOUNT NO.-----PHONE NO.-----

1 TRACK     1 TRACK     1 TRACK  
 2 TRACK     2 TRACK     2 TRACK  
 400 RPT     400 RPT     1000 RPT

OLD LEVEL ( ) LOW    ( ) NORMAL    ( ) CRITICAL  
 (NORMAL IS RECOMMENDED.)

PROTECTION ( ) DESTROY LABEL ( ) SAVE LABEL

UNDERSTAND THAT ALL DATA ON THIS TAPE WILL BE DESTROYED AND THAT THERE IS A CHARGE FOR THIS SERVICE.

PLEASE SIGN-----RETURN OUTPUT TO-----

Use this slip when you wish to test an SN tape stored in our library or a transient tape submitted with the slip. A separate slip should accompany each tape. There is a charge for this service; bulk rates are available for large quantities of tapes.

We have a KYBE TMS70 for off-line testing and cleaning of tapes. All data on a tape is destroyed when it is tested and tapes are automatically cleaned before being tested. Select only one testing format. If more than one testing format is desired, submit an additional slip. Users are charged for each test run.

TAPE CLEANING

REQUEST TO HAVE TAPE CLEANED (LAUDERDALE)

TAPE VSN-----TAPE ID-----

ACCOUNT NO.-----PHONE NO.-----

UNDERSTAND THERE WILL BE A CHARGE FOR THIS SERVICE

PLEASE SIGN-----

THIS TAPE WILL BE CLEANED ONLY. DATA ON THE TAPE WILL NOT BE DESTROYED OR ALTERED IN ANY MANNER.

FOR OFFICE USE

OPER. OR-----DATE AND TIME COMPLETED-----

TOTAL FOOTAGE-----

JMS 3/1/76

Use this slip when you wish to clean an SN tape stored in our library, or a transient tape submitted with the slip. A separate slip should accompany each tape and there is a charge for this service. A bulk cleaning rate is available for large quantities of tapes. Contact the Tape Librarian at 373-4995 for further details. Keep in mind that SN tapes are cleaned periodically (at no charge); the period between cleanings is based on the number of times a tape is used and all SN tapes are cleaned at least once a year. Data on a tape is not destroyed or disturbed by cleaning.

REMOVE A TAPE

This form must be used when you wish to remove a tape stored in our SN library. Separate slips must be filled out for each tape removed.

DATE-----

TITLE-----

USER-----

TIME-----

IF-----

PLEASE SIGN-----

- a) The tape VSN and ID must correspond exactly to that which appears on the tape paper label.
- b) A space is provided to check whether the user wants normal or special turnaround. An explanation of "other" turnaround should be written on the back of the slip. Normal turnaround is 24 hours or less; again, the one hour minimum is in effect and we reserve the right to judge the necessity for the faster than normal turnaround.
- c) Space is provided for indicating whether the user is removing the tape temporarily or permanently. If the removal is temporary, please indicate the number of days. Tape held out for more than 90 days are considered permanently removed and will need a new VSN when restored to the library.
- d) Space is provided at the bottom of the slip to indicate to where the tape should be delivered.

RETURN A TAPE

REQUEST TO RETURN TAPE TO TAPE LIBRARY (LAUDERDALE)

\*\*\*\*\* PLEASE RETURN THIS TAPE TO STORAGE AT LAUDERDALE \*\*\*\*\*

DATE-----

TAPE VSN-----

TAPE ID-----

PLEASE SIGN-----

9/12/75 KFM

This slip must accompany all tapes that have been temporarily removed from the SN library and are now being returned. A separate slip should accompany each tape.

- a) To avoid confusion and delay, please be sure that the VSN and ID on this slip match those on the paper label on the tape.

MAKE SPECIAL REQUESTS

SPECIAL REQUEST SLIP (LAUDERDALE)

DATE-----JOB NAME-----BIN NO.-----

PUNCH CARDS, APPROX. NO. IF OVER 2000-----

PRINTED PAGES, APPROX. NO. IF OVER 400-----

VSN=TT-----IU=-----

VSN=TT-----IU=-----

VSN=TT-----IU=-----

OTHER SPECIAL INSTRUCTIONS. (USE BACK IF NECESSARY)-----

This slip should be filled out and submitted with jobs using transient tapes (unless the tape has been temporarily stored at lauderdale; see the previous form description). Use these lines to enter transient tape VSNs and IDs.

Use this slip for all jobs submitted where you expect to generate more than 2000 punched cards or more than 400 pages of printed output. Please estimate the number of cards or pages you expect.

Use this space for other special instructions to explain special handling, such as multiple tape jobs or requesting that printing be done on the reverse side of the paper. If you have periodic or frequent runs, you may writeup your own instructions to submit with your jobs.

In general, if the special request requires operator intervention to make special settings on, or to place user provided forms in, the printer or other devices during any part of the run, you must have the prior approval of the Operations Supervisor.

## REPORT MISSING INPUT/OUTPUT

Use this form to trace missing items (i.e., tapes, punched cards, printer output, etc.) processed and/or handled by UCC Operations personnel at UCC staffed sites. Submit this form whenever any item of input or output does not come back within a reasonable length of time. A "reasonable time" should be governed by prevailing conditions effecting throughput; for example, the computer may be down, shuttle picks up lauderdale output only once each hour, etc. Our operators have been instructed not to search for missing items until they receive this form for these reasons:

- a) Submitting this form is an indication that you have done all possible in attempting to find the item. Our records show that 30-40% of items reported missing turn up where they belong, or have in some way been lost by the user.
- b) The completed form gives us a record of the problems we have in this area. We can then identify some of the basic causes and take steps to remove these causes.

MISSING INPUT/OUTPUT FORM

Please complete this portion of the form in as much detail as possible.

A. Present date: 11/11/76 B. Present time: 11:00  
Month Day Year Hours Minutes

C. Your Name: \_\_\_\_\_ D. Phone: \_\_\_\_\_  
hours when you're called

F. Circle number in front of item(s) expected but not received and describe the item(s) - e.g. job, quantity of cards, VSN and ID of tape, etc.

11 01 Program Deck      05 LRM Output      Description:  
 02 Printed Output    07 Punched Deck Output  
 03 Various other Output    08 Transient Tape (see item 8)  
 04 CAMD2 Doc. output    09 Other (explain)  
 05 Flow Control Output

G. Circle number in front of site at which job was submitted:  
 17 1 Lauderdale (see items 2 & 3) 2 Exp. Eng. (see items 0 & 1) 3 Other (see item 7)

H. Job Card: \_\_\_\_\_ I. Bin Number: \_\_\_\_\_

J. Account Number: 13 \_\_\_\_\_

K. Date job was submitted: 11/11/76  
Day Month Year

L. Time job was submitted: 11:00  
Hours Minutes

M. TT Tape(s) only:  
 Did you indicate on the tape label where to return your tape? 35/1 yes 1/2 no  
 If yes, where? \_\_\_\_\_  
 What size was your tape? \_\_\_\_\_ Minimal \_\_\_\_\_ 600' \_\_\_\_\_ 1200' \_\_\_\_\_ 2400' \_\_\_\_\_ 3200'

N. Lauderdale Users Only:  
 Were other jobs submitted at the same time with identical Job Cards and Bin Numbers? 36/1 yes 1/2 no If yes, how many? \_\_\_\_\_

O. Experimental Engineering Users Only:  
 Were other jobs submitted at the same time with identical Job Cards?  
37/1 yes 1/2 no If yes, how many? \_\_\_\_\_  
 Did you pick up your job within 24 hours? 38/1 yes 1/2 no  
 If not, have you checked the large bin under your bin number? 1/1 yes 1/2 no

P. Disposed, Deleted or Submitted Jobs Only:  
 Site of Job origin? 1/1 Intended Destination? 5/3 1/1 1/1

Here is a table of language processor uses on the Cyber 74 and the 6400 computer systems for the period July 1, 1975 through June 30, 1976. For comparison, usage for the previous fiscal year is included.

PROCESSOR	1975-76			1974-75		
	Cyber 74	CDC 6400	total	Cyber 74	CDC 6400	total
ALGOL	1,763	1,373	3,136	2,581	1,995	4,576
APL	673	6,262	6,935	605	6,658	7,263
APLUM	227	483	710	-	-	-
BASIC	28,103	488,814	476,917	271	1,476,984	1,477,255
BASIC (batch)	122	-	122	174	-	174
BATCHER	29,121	-	29,121	30,032	-	30,032
COBOL	42,756	6,250	49,006	33,711	8,555	42,266
COMPASS	21,131	22,625	43,756	20,030	24,556	44,586
DARE	402	-	402	-	-	-
EMULATE	7,648	-	7,648	2,413	-	2,413
FTN	68,889	-	68,889	56,284	-	56,284
GPSS	852	-	852	1,064	-	1,064
LISP	2,487	1,079	3,566	665	1,303	1,968
MIMIC	1,210	-	1,210	787	-	787
MIXAL	7,102	-	7,102	11,842	-	11,842
MIXBYTE	412	-	412	607	-	607
MNF	417,317	393,107	810,424	225,501	526,252	751,753
PASCAL	38,159	65,158	103,317	13,968	8,928	22,896
PLONE	22	-	22	39	-	39
PL1	1	-	1	-	-	-
RUN23, RUN	26,606	6,867	33,473	37,282	5,588	42,870
SIMS	103	-	103	642	-	642
SIMULA	2,192	-	2,192	2,310	-	2,310
SNOBOL	3,578	-	3,578	1,823	-	1,823
SNOBOLC	8,067	28,727	36,794	5,505	36,494	41,999
UMRPG	379	-	379	721	-	721

T H E S U G G E S T I O N  
B O X

To ensure a response, please sign all the SUGGESTION BOX cards you submit. Those which appear to be of general interest will appear in the UCC newsletter; each ? item printed shows the initials of the questioner and the date submitted. Please note that all submitted cards do not appear here; some are answered by direct action and some responses are made individually to the questioner.

? Pulling BIN cards in order at ExpEng is OK for people such that HEIGHT > 65". For people with HEIGHT < 65", BIN 50, say, is as far away as the moon. Please tell the operators to stop yelling at the shorties. E.F.: 7AUG76

A It has always been our policy that BIN cards may be pulled out of order by persons who are too short to reach the upper bins. In fact, we re-numbered the bins in vertical rows to facilitate this. We apologize for the misunderstanding and will do our best to see that it does not occur in the future.

While on the subject of BIN cards, we would be happier if our ExpEng users would not pull BIN cards until the time at which they submit a job. Pulling cards 20 or 30 numbers ahead of the current number or even pulling the current number with the intention of submitting a job sometime in the future creates confusion for the operators who are trying to keep tabs on uncompleted jobs.

J. Larson

? Regarding the newsletter answer to my request to restore COMCZFN: COMZTB does not do the same thing, it does the opposite thing. I need something to change blanks to OOB codes (zero fill). This is what COMCZFN does. K.B.: 31AUG76

A Oh, that COMCZFN! It's on CPL (FETCH,CPL.)

K. Matthews

? When a tape label is scratched from the console, five EOFs are usually written on the tape. I would like to see the following information inserted between EOF 2 and EOF 3:

1. VSN of the tape that was supposed to be scratched.
2. Date and time.
3. Operator's initials.

This will help if problems arise. S.R.:

A Very nice. We'll add it to our list of neat things to do.

W. Elliott

? The reader who expressed concern over the FORTRAN limit on unit record length (August, 1976) should consider using PASCAL. Among its many advantages over FORTRAN: the CDC implementation of PASCAL allows unit records of any length. J.F.M.:

A This is correct.

A. Mickel

? Why doesn't (or why can't) the abbreviated form of the ENQUIRE command work in batch mode? Obviously, you've made E,F a Telex processed command, but, by the same logic, R,lfm should only be a Telex command, etc. P.C.H.: 3SEPT76

A E does work in the BATCH subsystem of Telex. The long form of the command, ENQUIRE, must be used in Batch jobs and procedure files. There are many Telex commands that can be abbreviated but the abbreviations cannot be used in Batch jobs (i.e., CAT for CATLIST). Since each abbreviation takes central memory, we decided not to abbreviate these commands for Batch users.

K. Matthews

? I am most disturbed by the current policy for the plotters. Turnaround time is approaching an unacceptable limit, especially when experimental plots are being done to test the test plotter. Also, under the current policy, when all the Statos plot files are doubled dot by dot to the Versatec, it is impossible to compare plots. Why not implement the plotter types correctly and make each one independently addressable? S.L.: 1SEPT76

A When have been TESTING a Versatec plotter received ON LOAD from our local sales representative. In order to make our tests comparable, we simulated the 100 dot per inch capability of our present Varian plotter using the 200 dot per inch feature of the Versatec. It was not our intention to make the 200 dot per inch feature available until another plotter is purchased because we may well decide that 100 dots per inch is enough.

The extended test period allowed us to see how the Versatec would stand up under production use. We also allowed the salesman to replace the original test plotter with one more recently manufactured. This new one was adjusted to produce darker plots so the replacement was worthwhile. We apologize for the slow turnaround. This is partly due to the slower speed of the Versatec and to our duplication of each plot.

We intend to test a 200 dot per inch Varian plotter against our current one in the same way, again duplicating each plot. At the conclusion of the test period, we will decide on a plotter and order a new one.

Again, we apologize for the inconvenience but we feel it is the only way to properly allow our users to see how the new equipment will act.

M. Frisch

? Is it possible to implement an n-way ANOVA capable of repeated measures on SPSS? This would be more convenient than plugging into BMD or UMST. D.R.: 23AUG76

A An n-way ANOVA is part of the newest version of SPSS (6.5); we plan to make this version available this fall. Also, BMDP2V now has this capability; see the article on the BMDP package that appears elsewhere in this newsletter.

M. Frisch

? The SUBMIT control card doesn't work as documented. The dayfile and job output are not sent to the Batch I/O site when the B option is used (i.e., the B doesn't do anything). I know this has been disabled, but why? Would it be possible to use options as on the DISPOSE card to control output disposition? P.C.H.: 31AUG76

A The B parameter was disabled for the following reasons:

- (1) It was confusing for the operators when a print file appeared suddenly on their printer and they had no way of knowing where it was 'submitted' from, where they should send the output, etc.
- (2) There is really nothing you cannot do with the B parameter that cannot also be done with the expanded DISPOSE card.

We are considering the consequences of saving all dayfiles from 'submitted' jobs under the user's catalog (similar to the way XMIT works for the MERITSS user).

N. Reddy

? Another problem with SUBMIT: in a control card deck that was submitted, I goofed something and took an exit where another error occurred so that I never go to the DISPOSE. I wasted a day trying to find out where my job went. I don't have the time to waste and suggest that something be done to ensure output from every job like this. I use SUBMIT to save punching 200 cards. P.C.H.: 3SEPT76

A Submitted jobs produce no output by design. By judicious use of KCL, one can usually ensure that any output is disposed or the dayfile is saved. In your case, control was transferred to statements after an exit where another error occurred. This could be avoided with a sequences such as:

```
      :  
      :  
      GOTO,3D  
      EXIT  
      :  
      :  
      GOTO,3D  
      EXIT  
      3D,DISPOSE,.....
```

K. Matthews

? Is there a command available for sending a local file from MERITSS to the Cyber and have it cataloged in the user's catalog (symmetrical equivalent to SEND on the Cyber)? This certainly would be handy. Although it is a trivial task, it must be something that many users need several times a day. R.McC.: 15JUL76

A The ECS-link between the two machines was designed on the basis that the 6400 would act like a high-speed batch terminal to the Cyber. The Cyber sends back output files (permanent files are a sub-set of output files in this sense) to the 6400. What you ask, then, is not trivial at the present time. We suggest that you use a procedure file on MERITSS to accomplish the same thing.

N. Reddy

? At Lauderdale (and probably other sites) it is not obvious how to submit jobs with transient tapes. Perhaps a sign giving procedures would help. P.V.: 3SEPT76

A Thank you for your suggestion. We will make a new sign if it will help users.

R. Folden

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C

--from the MECC PUNCH LINE (V3N1, September, 1976)

WELCOME BACK to another year of instructional computing. Having just passed through a year of many ups and downs, we look forward in the coming year to providing increased stability and expanded computing features to our timesharing users.

The process of obtaining, developing, testing, and judging a statewide timesharing system begun over three years ago, is finally nearing its completion. The UNIVAC 1110 underwent the three month first phase of acceptance testing this past spring, with testing being completed on July 14. The final decision on acceptance of the system is left, by legislative action, to the state Governor, in consultation with the legislative advisory committee. The Governor has not yet rendered a decision.

Until the Governor makes an official decision on the issue the MECC staff must work with the system that is available, the U1110, to provide service to users. Until a decision comes to the contrary, the MECC staff will concentrate on its first priority, providing this service.

As the legislation regarding this statewide system procurement calls for a second phase of acceptance testing, the MECC staff is preparing for the beginning of that phase on October 1. Unless a better plan is forwarded, testing shall be carried out as in the spring with USERS BEING RELIED UPON TO GENERATE MAXIMUM LOADS and to spot problems while official test results are recorded at the MECC central site. As the fall phase of testing will be carried out during a period when schools are in full session, we expect the best possible gauging of system performance under normal user loads. The communications network will be equipped to support over 410 ports in simultaneous use.

The MECC staff has put some effort over the summer into exploring back-up alternatives should the U1110 not be accepted. A number of vendors have presented us with their plans for supplying timesharing service on a statewide basis. Six system configurations have been reviewed and analyzed in order that the best possible back-up system be obtained if necessary.

If the UNIVAC 1110 were removed, MECC would be prepared to move on obtaining back-up services. A look at the delivery schedule for the alternative systems, however, emphasizes that the transition would not be instantaneous and would almost certainly be disruptive to users.

Please be advised that the next MECC user meeting is scheduled to be held on Saturday, October 30, 1976, at St. Cloud State University. A complete status report will be given at the meeting in addition to other agenda items which might interest you.



PRODUCTION USAGE SUMMARIES

CDC Cyber 74

	August 1976	August 1975
Number of jobs run	63,708 ( 72,154)	45,450 ( 54,457)
Central processor hours	143 ( 187)	113 ( 151)
Mass storage transfers (KPR)	154,680 (200,887)	-
Magnetic tape transfers (KPR)	4,981 ( 6,909)	-
Pages printed	714,787 (826,972)	544,728 (682,828)
Cards punched	498,712 (555,172)	517,577 (588,974)
Microfilm frames produced	10,955 (220,364)	17,588 (186,818)
Tapes mounted	8,619	7,097
Average file storage	743.9 million characters	545.8 million characters
Mean time between failures	11.0 hours	10.0 hours
Percentage available during scheduled hours	96.8 percent	95.0 percent

CDC 6400

Thru August 23

Number of jobs run	45,743	55,915
Central processor hours	104	54
Terminal hours	6,663	6,944
Number of terminal sessions	12,135	13,837
Maximum number of simultaneous users	56	67
Average file storage	233.6	181.3
Mean time between failures	81.9 hours	119.4 hours
Percentage available during scheduled hours	99.3 percent	99.9 percent

(total including staff development, accounting, and maintenance runs)

CYBER 74 DOWNTIME SUMMARY -- AUGUST 30 - SEPTEMBER 29, 1976

	Monday-Friday 0800 - 1800	other	total
Total possible scheduled uptime hours	210	298	508
Total downtime hours (see schedule A)	7.2	1.7	8.9
Total uptime hours	202.8	296.3	499.1
Uptime percentage	96.6 percent	99.4 percent	98.2 percent
Average downtime per occurrence	17.3 minutes	9.1 minutes	14.8 minutes
Mean time between failures	8.1 hours	26.9 hours	13.9 hours

Subsystem failures

SUP10	9	2	11
TELEX	0	0	0
EXPORT	3	0	3

Schedule A: downtime hours

	Number of occurrences	total hours down	average minutes downtime
1) Preventive maintenance over-runs	0	0	0
2) Software related problems	19	3.3	10.4
3) Hardware related problems	8	4.6	34.5
4) Indeterminate software/hardware problems	9	1.0	6.6
5) External problems	0	0	0

On the 30th of August the system was down for 3½ hours due to an ECS failure. This crash alone amounts to 39% of the months downtime. Most of the software crashes were due to one software package that has now been fixed. This accounted for the system stabilization in the latter part of the period.

R. Dykstra

(USAGE STATISTICS, TELEX NOT INCLUDED)

September 1976

Submitted from	total jobs	% of jobs	pages printed	% pages	cards read	% of cards
Central Site	3457	8.1	257431	28.6	1714594	18.9
ExpEng I/O	6539	15.3	200544	22.3	2372497	26.1
West Bank	2320	5.4	71232	7.9	850035	9.4
6400	1173	2.8	0		0	
SUP10	29117	68.3	369377	41.1	4139060	45.6
Totals	42606		898584		9076186	

WRITEUP documents

ABCLIST 13OCT75 Extended CATLIST utility (1p)  
 AMEND 03MAR75 Unit record manager (4p)  
 → APLUM 03AUG76 APL interpreter (2p)  
 → ARCHIVE 04SEP76 PF dump/load utility (21p)  
 → BKP 16AUG76 Breakpoint CP program (8 p)  
 BLANK 12NOV75 Initial label writing (2p)  
 BLOCKER 05JAN76 Write blocked stranger tape (3p)  
 → CALLPFM 23SEP76 FTN4 PF routines (7p)  
 → CALLPRG 14SEP76 Library search extension (7p)  
 CATALOG 19JAN75 Catalog a file (2p)  
 CATLIST 01MAR75 Catalog a permanent file (3p)  
 CATLSYS 10MAR76 Extended CATLIST utility (1p)  
 CHANGER 13OCT75 Extended CHANGE utility (1p)  
 → CHANGES 21AUG76 Merged system changes  
 CIMSPLL 16OCT75 PL/1 User Guide (34p)  
 CKSPSS 07MAY76 SPSS utility (5p)  
 CONTROL 26MAY76 Control card descriptions (indexed)  
 COPYU 11DEC75 Copy unit record (6p)  
 COST 18JAN75 Calculate job cost (1p)  
 → DELAY 26JUL76 Delayed input description (1p)  
 DISPOSE 16JUN75 DISPOSE control card (9p)  
 DMPCOR 13MAR75 CM dump routine (1p)  
 DMPECS 01MAR75 ECS dump routine (1p)  
 DRESS 01MAR75 Prepare MODIFY/UPDATE source (13p)  
 DUMPPF 27SEP75 PF dump/load utility (7p)  
 → EISPACK 14SEP76 Description of EISPACK routines (indexed)  
 EXAMINE 26FEB76 Determine mag tape contents (5p)  
 FILES 30MAR76 Local file manipulator (4p)  
 → FMT 08JUL76 Text formatting program (27p)  
 → FORSUBS 27AUG76 Description of FORTRAN subprograms (indexed)  
 → FUNPACK 14SEP76 Description of FUNPACK programs (indexed)  
 GETSAVE 13OCT75 PF transfer utility (1p)  
 HASH 26MAR76 User index/job name scrambler (1p)  
 ISIS 30MAR75 Interactive statistics (45p)  
 → KCL 08AUG76 Control card processor (9p)  
 LIBEDIT 18JAN75 Library editing program (3p)  
 → LISP 09AUG76 LISP information (19p)  
 → LIBRARY 27AUG76 Descriptions of library files (indexed)  
 → LIBLIST 27AUG76 Descriptions of library files (5p)  
 MODIFY 18JAN75 Source library editing (11p)  
 MODUP 14APR76 MODIFY/UPDATE conversion (1p)  
 PACKMS 03MAR75 Pack random file (1p)  
 PASCAL 22SEP75 PASCAL information (26p)  
 → PASCLIB 26SEP76 PASCAL library information (indexed)  
 PFGUIDE 28SEP75 PF User's Guide (60p)  
 PFILES 21MAY76 PF request processor (7p)  
 PREVIEW 01MAR75 Preview display dump (1p)  
 → PROCPAC 24JUL76 System routines  
 PURGER 13OCT75 Extended PURGE utility (1p)  
 REBLOCK 19NOV75 Tape converter (6p)  
 REFORM 18DEC75 manipulate t/s source (1p)  
 RJECON 26JUN75 RJE commands (4p)  
 SEND 14APR76 Send files to 6400 (2p)  
 SNOINFO 15APR75 SNOBOL information (24p)  
 SNPSHOT 09APR75 Write/restore registers (5p)  
 → SQUEEZ 15SEP76 Squeeze COMPASS listing (1p)  
 STRATEN 09SEP75 Straighten COMPASS listing (4p)  
 SYSLIB 01APR75 SYSLIB documentation (3p)  
 → TAPES 15JUL76 Tape library manager (10p)  
 TAPEUSE 05JAN76 Tape user's guide (70p)  
 TDUMP 30MAR76 File dump (1p)  
 → TEKLIB 30JUN76 Tektronix library description  
 TESTCR 03JUL75 Card reader test (1p)  
 TESTLP 16JUN75 Line printer test (2p)  
 TIDY 01MAR75 Tidy FORTRAN source (7p)  
 TYPESET 23JUN74 Text reform program (12p)  
 UNPAGE 12MAR75 Carriage control editor (6p)  
 → XEDIT 10JUN76 Text editor (14p)  
 1004INS 26DEC75 U1004 operating instructions (3p)  
 1004SET 03JUL75 U1004 character set conversion (4p)

WRITEUP files with routinely changing information

AFmmmyy Lists of archived files; mmm=month, yy=year.  
 CONSULT Consulting sites and hours  
 DOCLIST List of UCC documentation; publications source  
 NOTE T/S system notes  
 PTRFORT List of FORTRAN bugs  
 PTRKR List of operating system bugs  
 PTRMISC List of miscellaneous software bugs  
 PTRSTAT List of statistics packages bugs  
 PTRS2K List of bugs in System 2000  
 RJDSTAT Daily SUPIO statistics  
 RJEMTOT Monthly SUPIO statistics  
 RJMSTAT Cumulative SUPIO statistics  
 SITEBIN Output shelf locations  
 SYSMODS Latest system changes  
 TSTATS Tape mounting statistics

Get copies of the WRITEUP documents with a deck like this:

Jobcard with T1 and CM10000  
 ACCOUNT card  
 WRITEUP,name  
 (6-7-8-9 card)

or enter the command

X,WRITEUP,name

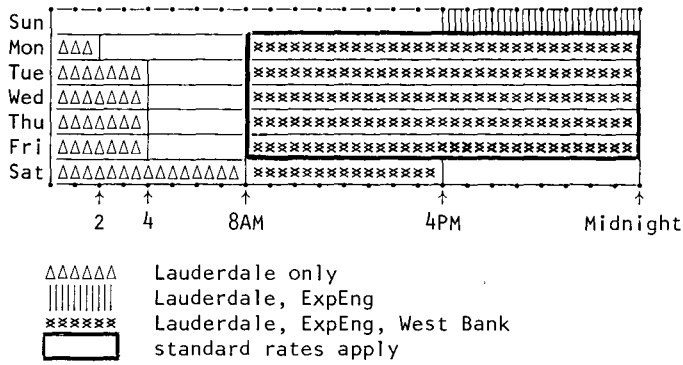
UCC Publications: free

Beginner's Guide to Timesharing Computing (1975)  
 Student Guide to Batch Computing (1975)  
 Instructor's Guide to Batch Computing (1976)  
 Index to Cyber 74 User Software (1975)  
 Univac 1004 Operating Instructions (1975)  
 System 2000 User Aids (1,2,3,4)  
 →UCC Instant  
 MINN subprogram writeups (see "INDEX")  
 ISIS User's Manual (1976)  
 IMP - An OMNITAB Mimic (1976)  
 SNOBOL4 at the University of Minnesota (1976)  
 RPG at the University of Minnesota (1974)  
 SLIP at the University of Minnesota (1974)  
 UWM BASIC at the University of Minnesota (1975)  
 LISP at the University of Minnesota (1974)  
 MIX at the University of Minnesota (1972)  
 CAL 6000 SNOBOL (1975)  
 MNF Reference Manual (1976)

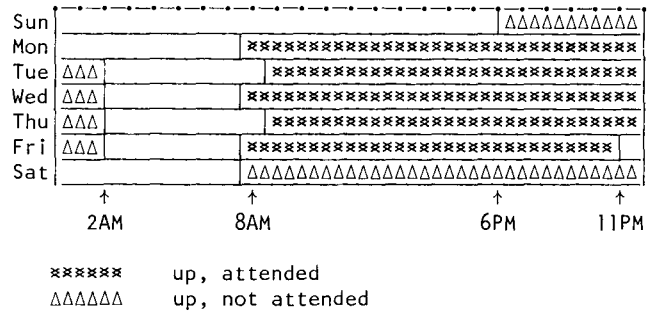
Notes:

The new version of the MNF Reference Manual  
 (blue cover) is now available at the Engineering  
 Bookstore; price is \$6.75.

CYBER 74 OPERATING HOURS\*



CDC 6400 OPERATING HOURS



\* These are machine hours. UCC operators stop accepting jobs about 15 minutes before operations end to enable the queues to clear on time.

SUPIO (RJE medium speed terminals) comes up 1/2 hour after operation begins and closes down 1/2 hour before operation ends.

TELEX (MIRJE terminals): the operator will issue a 10 minute warning before TELEX is dropped.

UOFM-TWIN CITIES RJE SITES

site	ID	supervisor(s)
<i>East Bank</i>		
ElectE 38	4V	J. Guentzel 373-5404 M. Cook 373-3895
EltH N640	4W	D. Anderson 373-5456
ExpEng 130	4B	Shift Supervisor 373-4596
KoltH S191	4Z	G. Jensen 373-5754
HS-A 1-752	4C	L. Ellis 373-0331
MinMet 321	4I	R. Brown 373-2308
Physics 69	44	R. Scarlett 373-0243 D. Olson 373-5320
SpaSci 134	43	R. Weinberg 373-7881
TerrH W106	4I	R. Baker 373-3567
<i>West Bank</i>		
SocSci 167	4X	J. Shea 373-3608
SocSci 1009	4K	R. Anderson 373-0168
<i>St. Paul</i>		
BioSci 257	47	R. Comstock 373-0979
ClaoFF 125g	48	C. Bingham 373-0988 S. Weisberg 373-1068 Consultant 373-0829 Consultant 376-3846
CofH 415	2I	D. Nelson 376-7003 T. Ehlen 376-7003
NorH 24	40	J. Colten 373-0990
<i>Lauderdale</i>		
User's Room	49	Shift Coordinator 373-4940

UOFM-TWIN CITIES INSTRUCTIONAL TIMESHARING LABS

site	supervisor
<i>East Bank</i>	
CentH Computer Room	R. Richgarn 373-2289
EltH 121 & 124	D. Anderson 373-5456
ExpEng 140	T. Hodge 373-4599
HealthSciA 1-752	L. Ellis 373-0331
LindH 136a	G. Schneider 373-7582
MechE 308	A. Erdman 373-2977
TerrH Computer Room	R. Baker 373-3567
VincentH 4	W. Stenberg 376-7529
WaLib 204	R. Estelle 373-5195
<i>West Bank</i>	
MdbH Computer Room	N. Bakkenist 373-9818
SocSci 167	J. Shea 373-3608
SocSci 1009	R. Anderson 373-0168
<i>St. Paul</i>	
ClaoFF 125	S. Weisberg 373-1068

KEYPUNCH SITES

<i>East Bank</i>	
ElectE 38	(1)
EltH N640	(2)
ExpEng 130	(2)
ExpEng 131	(1)
ExpEng 208	(14, including 029 and interpreting punch)
KoltH S191	(1)
MinMet 321	(2)
Physics 69	(1)
TerrH W106	(1)
<i>West Bank</i>	
BlegH 86	(11)
BlegH 90	(1)
SocSci 167	(2, including interpreting punch)
SocSci 1009	(1)
<i>St. Paul</i>	
ClaoFF 125	(2)
CofH 415	(1)
NorH 24	(2)
<i>Lauderdale</i>	
User's Room	(5, including 029 and interpreting punch)

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SHORT  
COURSES

The University of Minnesota-Duluth Computer Center staff has spent some of this summer creating a new graphics program called DUAL (Duluth Art Language). DUAL is an interactive language created by updating a batch oriented language, SPLAT, written at the University of Denver.

DUAL makes full use of the graphics equipment available at the University of Minnesota: Tektronix, Varian, and Calcomp. In general, a program written in DUAL specifies a geometric figure (such as a circle, square, triangle). The figure is then drawn, modified, drawn again, modified, drawn again, etc., to form some sort of interesting series. Modifications can include contraction, expansion, rotation, and movement about the output media. DUAL also allows for computation in a manner similar to BASIC, and conditional and unconditional branching. Figures are specified in terms of coordinates and a size. Very little math background is necessary to use the DUAL language and it is very easy to produce some interesting outputs.

The system command for access is X,DO,DUAL. The output medium is assumed to be Tektronix, but Cyber 74 users can change this to create a PLOTPAC output file. The PLOTPAC file can then be transferred to the Varian or Calcomp plotters for plotting.

The Duluth Computer Center has completed a DUAL manual oriented towards the computer novice. Twin Cities campus users may obtain copies of this manual from the UCC Reference Room, 235a ExpEng. On-line documentation for DUAL is available by entering HELP during a DUAL session.

#### EVENING SHORT COURSES

##### COMPASS

*An introduction to COMPASS and a survey of the major features. Emphasis on FORTRAN/COMPASS interaction.*  
October 6, 13, 20, 27, Nov. 3, 10, 17, 24,  
Dec. 1: 7:00 - 9:00 PM, 325 LindH.

##### KRONOS CONTROL CARDS

*An introduction to the KRONOS operating system and descriptions of the available control statements.*  
November 9, 11, 16, 18, 23, 30, Dec. 2,7:  
6:00 - 8:00 PM, 21 Aero

#### SCHEDULE CHANGES

- (1) The INTRO TO UCC seminar has been changed to OCTOBER 27, 2:15-4:00 PM, 60 Arch
- (2) The BEGINNING FORTRAN course is scheduled to meet in 162 ChemE (not 136 ChemE).

#### RETURN TO:

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